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 165 170 175

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ggg gtc gag gtg cgc gtc tgg gac tcg acg gcg gag ctc cgg tat ctc  
 576  
 Gly Val Glu Val Arg Val Trp Asp Ser Thr Ala Glu Leu Arg Tyr Leu  
 180 185 190

15

gtt ttg ccg gag cgg ccc gaa ggc acg gcg caa ctg agc gaa gaa gcg  
 624  
 Val Leu Pro Glu Arg Pro Glu Gly Thr Ala Gln Leu Ser Glu Glu Ala  
 195 200 205

20

ctc gcg gat ctc gtc acc cgg gat gcc atg atc ggc gtc gcg aaa gtc  
 672  
 Leu Ala Asp Leu Val Thr Arg Asp Ala Met Ile Gly Val Ala Lys Val  
 210 215 220

25

tcg ttg ccc gcg ggc ggc gcc gaa tga  
 699  
 Ser Leu Pro Ala Gly Gly Ala Glu  
 225 230

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<400> 42

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 1 5 10 15

45

Gly Ala Thr Ala Ala Pro Val Gly Leu Ala Lys Ile Ala His Ser His  
 20 25 30

50

Glu His Gln Ala Val Pro Ser Asp Leu Thr Leu Arg Val Lys Ser Leu  
 35 40 45

55

Glu Ser Leu Leu Val Glu Lys Gly Leu Val Asp Arg Glu Ala Leu Asp  
 50 55 60

Val Leu Val Asp Thr Tyr Glu Asn Lys Ile Gly Pro Arg Asn Gly Ala  
 65 70 75 80

5 Arg Val Val Ala Arg Ala Trp Val Asp Pro Ala Tyr Lys Glu Arg Leu  
 85 90 95  
 Leu Lys Asp Ala Thr Ser Ala Ile Ala Glu Leu Gly Tyr Thr Gly Ala  
 100 105 110  
 10 Gln Gly Glu His Met Val Ala Leu Glu Asn Thr Pro Ala Val His Asn  
 115 120 125  
 15 Leu Val Val Cys Thr Leu Cys Ser Cys Tyr Pro Trp Pro Val Leu Gly  
 130 135 140  
 20 Leu Pro Pro Val Trp Tyr Lys Ser Ala Pro Tyr Arg Ser Arg Ser Val  
 145 150 155 160  
 25 Ile Asp Pro Arg Gly Val Leu Gly Glu Phe Gly Leu Glu Leu Pro Glu  
 165 170 175  
 Gly Val Glu Val Arg Val Trp Asp Ser Thr Ala Glu Leu Arg Tyr Leu  
 180 185 190  
 30 Val Leu Pro Glu Arg Pro Glu Gly Thr Ala Gln Leu Ser Glu Glu Ala  
 195 200 205  
 35 Leu Ala Asp Leu Val Thr Arg Asp Ala Met Ile Gly Val Ala Lys Val  
 210 215 220  
 40 Ser Leu Pro Ala Gly Gly Ala Glu  
 225 230  
 45 <210> 43  
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 55 <400> 43  
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 48  
 Met Pro Asp Asp His Ala His Pro Asp Asp His Ala His Gly Ser Glu

	1	5	10	15
	ttg tcc gag atg gat atc cgg gtg cgg gcg ctg gag acc atc ctg acc			
	96			
5	Leu Ser Glu Met Asp Ile Arg Val Arg Ala Leu Glu Thr Ile Leu Thr	20	25	30
	gag aag ggc tat gtc gat ccg gcg gcg ctc gac cgg atc gtc gag gcg			
	144			
10	Glu Lys Gly Tyr Val Asp Pro Ala Ala Leu Asp Arg Ile Val Glu Ala	35	40	45
	ttc gag acc agg atc ggc ccg cat atc ggc gcc cgt atc gtg gca cgg			
	192			
15	Phe Glu Thr Arg Ile Gly Pro His Ile Gly Ala Arg Ile Val Ala Arg	50	55	60
	gct tgg gcc gac gcc gaa ttc aag cgg cgg ctg ctc gcc gac gcg acc			
	240			
20	Ala Trp Ala Asp Ala Glu Phe Lys Arg Arg Leu Leu Ala Asp Ala Thr	65	70	75
	gag gcg gcg aat tcg ctg ggt cat gcg agc ccg gtc ggc agc cat ctg			
	288			
25	Glu Ala Ala Asn Ser Leu Gly His Ala Ser Pro Val Gly Ser His Leu	85	90	95
	atc gcg gtc gag aac acg ccg cag acc cac aac ctc gtc gtc tgc act			
	336			
30	Ile Ala Val Glu Asn Thr Pro Gln Thr His Asn Leu Val Val Cys Thr	100	105	110
	ttg tgc tcg tgt tat ccg tgg gag gtg ctg gga ttg ccg ccg gtc tgg			
	384			
35	Leu Cys Ser Cys Tyr Pro Trp Glu Val Leu Gly Leu Pro Pro Val Trp	115	120	125
	tac aaa tcc gct gcc tac cgc tcg cgc gtg gtg atc gac ccc aag ggc			
	432			
40	Tyr Lys Ser Ala Ala Tyr Arg Ser Arg Val Val Ile Asp Pro Lys Gly	130	135	140
	gtc ctc gcc gag ttc ggc ctg acc ctg cca ccg gag acc ggg atc cgc			
	480			
45	Val Leu Ala Glu Phe Gly Leu Thr Leu Pro Pro Glu Thr Gly Ile Arg	145	150	155
	atc tgg gat tcg acc gcc gag acc cgg ttt ctg gtg gtg ccg atg cgg			
	528			
50	Ile Trp Asp Ser Thr Ala Glu Thr Arg Phe Leu Val Val Pro Met Arg	165	170	175
	ccc ccc ggc acc gca ggc tgg agc gag gaa cgg ctc gcc gaa ctc gtc			
	576			
55	Pro Pro Gly Thr Ala Gly Trp Ser Glu Glu Arg Leu Ala Glu Leu Val	180	185	190
	acc cgc gac agc atg atc ggc act ggt ctg gcc ggg gcg ccg cag gag			
	624			

Thr Arg Asp Ser Met Ile Gly Thr Gly Leu Ala Gly Ala Pro Gln Glu  
 195 200 205

5 atg gcc tcg gca tga  
 639  
 Met Ala Ser Ala  
 210

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25 Leu Ser Glu Met Asp Ile Arg Val Arg Ala Leu Glu Thr Ile Leu Thr  
 20 25 30

30 Glu Lys Gly Tyr Val Asp Pro Ala Ala Leu Asp Arg Ile Val Glu Ala  
 35 40 45

Phe Glu Thr Arg Ile Gly Pro His Ile Gly Ala Arg Ile Val Ala Arg  
 50 55 60

35 Ala Trp Ala Asp Ala Glu Phe Lys Arg Arg Leu Leu Ala Asp Ala Thr  
 65 70 75 80

40 Glu Ala Ala Asn Ser Leu Gly His Ala Ser Pro Val Gly Ser His Leu  
 85 90 95

45 Ile Ala Val Glu Asn Thr Pro Gln Thr His Asn Leu Val Val Cys Thr  
 100 105 110

50 Leu Cys Ser Cys Tyr Pro Trp Glu Val Leu Gly Leu Pro Pro Val Trp  
 115 120 125

Tyr Lys Ser Ala Ala Tyr Arg Ser Arg Val Val Ile Asp Pro Lys Gly  
 130 135 140

55 Val Leu Ala Glu Phe Gly Leu Thr Leu Pro Pro Glu Thr Gly Ile Arg  
 145 150 155 160

Ile Trp Asp Ser Thr Ala Glu Thr Arg Phe Leu Val Val Pro Met Arg  
165 170 175

5 Pro Pro Gly Thr Ala Gly Trp Ser Glu Glu Arg Leu Ala Glu Leu Val  
180 185 190

10 Thr Arg Asp Ser Met Ile Gly Thr Gly Leu Ala Gly Ala Pro Gln Glu  
195 200 205

Met Ala Ser Ala  
210

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<210> 45  
<211> 696  
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20 <213> Unknown

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1 5 10 15

35 ctg cat gat cga gct ggc ggc gtt cga tca ttg cgc ggc aaa agg tct  
96  
Leu His Asp Arg Ala Gly Gly Val Arg Ser Leu Arg Gly Lys Arg Ser  
20 25 30

40 cat cgc gcc gga tcg cat cct cgg ggc gct cgc gca tcc gtc gcc aca  
144  
His Arg Ala Gly Ser His Pro Arg Gly Ala Arg Ala Ser Val Ala Thr  
35 40 45

45 ggg tgg ttc gtt ccg ttc tcg gcc agg ctc gcc cgg aaa ggc atc gct  
192  
Gly Trp Phe Val Pro Phe Ser Ala Arg Leu Ala Arg Lys Gly Ile Ala  
50 55 60

50 cct ccg gcc gag atc gcc gag cgg atc gcc gtc acc gat cgc gca tca  
240  
Pro Pro Ala Glu Ile Ala Glu Arg Ile Ala Val Thr Asp Arg Ala Ser  
65 70 75 80

55 ccg gca atg ggc gct cgc atg gtc gcc aag gcc tgg acc gat ccc gcc  
288  
Pro Ala Met Gly Ala Arg Met Val Ala Lys Ala Trp Thr Asp Pro Ala  
85 90 95

ttc cgc acc ctg ctc ttg gaa gac gga acc cgc gcg gcg gaa tcg ctc  
 336  
 5 Phe Arg Thr Leu Leu Leu Glu Asp Gly Thr Arg Ala Ala Glu Ser Leu  
 100 105 110

ggc atc atg atg cgc ggc gcc ccg cct ctc ggt gtg ctg gag aat acg  
 384  
 10 Gly Ile Met Met Arg Gly Ala Pro Pro Leu Gly Val Leu Glu Asn Thr  
 115 120 125

ccc gag att cat cac ctc gtc gtt tgc acg ctg tgc agt tgt tac ccg  
 432  
 15 Pro Glu Ile His His Leu Val Val Cys Thr Leu Cys Ser Cys Tyr Pro  
 130 135 140

cgc gcg gtg ctg ggc tat ccg ccg ttc tgg ttc aaa tcc gcc gcc tac  
 480  
 20 Arg Ala Val Leu Gly Tyr Pro Pro Phe Trp Phe Lys Ser Ala Ala Tyr  
 145 150 155 160

cgg gca cgt gcg gtg cgc gac ccg cgc ggt ctg atc gcc gaa tgg ggc  
 528  
 25 Arg Ala Arg Ala Val Arg Asp Pro Arg Gly Leu Ile Ala Glu Trp Gly  
 165 170 175

acc atg ctg ccc gac gat gtc cgc gtg cga gtg gtg gac agt acg gcc  
 576  
 30 Thr Met Leu Pro Asp Asp Val Arg Val Arg Val Val Asp Ser Thr Ala  
 180 185 190

gac tat cgc tgg atg gtt ctg ccg gtg cgg ccg gcc ggc act gcg ggc  
 624  
 35 Asp Tyr Arg Trp Met Val Leu Pro Val Arg Pro Ala Gly Thr Ala Gly  
 195 200 205

tgg gat gag gag cgc ctc gcc gca atc gta cgc gaa ggc gat atg atc  
 672  
 40 Trp Asp Glu Glu Arg Leu Ala Ala Ile Val Arg Glu Gly Asp Met Ile  
 210 215 220

ggg gtg acc atc cct cgt ctt taa  
 696  
 45 Gly Val Thr Ile Pro Arg Leu  
 225 230

<210> 46  
 <211> 231  
 50 <212> PRT  
 <213> Unknown

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 55  
 <400> 46

Met Arg Ser Pro Gly Glu Ala Ser Ala Thr Gln Pro Ala Leu Ile Arg  
 1 5 10 15



5 Leu His Asp Arg Ala Gly Gly Val Arg Ser Leu Arg Gly Lys Arg Ser  
20 25 30

His Arg Ala Gly Ser His Pro Arg Gly Ala Arg Ala Ser Val Ala Thr  
35 40 45

10 Gly Trp Phe Val Pro Phe Ser Ala Arg Leu Ala Arg Lys Gly Ile Ala  
50 55 60

15 Pro Pro Ala Glu Ile Ala Glu Arg Ile Ala Val Thr Asp Arg Ala Ser  
65 70 75 80

20 Pro Ala Met Gly Ala Arg Met Val Ala Lys Ala Trp Thr Asp Pro Ala  
85 90 95

Phe Arg Thr Leu Leu Leu Glu Asp Gly Thr Arg Ala Ala Glu Ser Leu  
100 105 110

25 Gly Ile Met Met Arg Gly Ala Pro Pro Leu Gly Val Leu Glu Asn Thr  
115 120 125

30 Pro Glu Ile His His Leu Val Val Cys Thr Leu Cys Ser Cys Tyr Pro  
130 135 140

35 Arg Ala Val Leu Gly Tyr Pro Pro Phe Trp Phe Lys Ser Ala Ala Tyr  
145 150 155 160

40 Arg Ala Arg Ala Val Arg Asp Pro Arg Gly Leu Ile Ala Glu Trp Gly  
165 170 175

Thr Met Leu Pro Asp Asp Val Arg Val Arg Val Val Asp Ser Thr Ala  
180 185 190

45 Asp Tyr Arg Trp Met Val Leu Pro Val Arg Pro Ala Gly Thr Ala Gly  
195 200 205

50 Trp Asp Glu Glu Arg Leu Ala Ala Ile Val Arg Glu Gly Asp Met Ile  
210 215 220

55 Gly Val Thr Ile Pro Arg Leu  
225 230

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 Met Gln Leu Arg Val Arg Ala Leu Glu Thr Val Leu Ala Glu Lys Gly  
 1 5 10 15

tat ctc gat ccc gcc gcg ctt gat gcg atg atc gaa gcc tac gag acg  
 20 96  
 Tyr Leu Asp Pro Ala Ala Leu Asp Ala Met Ile Glu Ala Tyr Glu Thr  
 20 25 30

cgg att ggg ccg cat aac ggc gcg cgc gtc gtc gcc aag gcc tgg tcc  
 25 144  
 Arg Ile Gly Pro His Asn Gly Ala Arg Val Val Ala Lys Ala Trp Ser  
 35 40 45

gac gcc gca ttc aag cga gcg ctg gtc gag gat gcg acc aag gcc gtg  
 30 192  
 Asp Ala Ala Phe Lys Arg Ala Leu Val Glu Asp Ala Thr Lys Ala Val  
 50 55 60

cag tcg ttc ggc gtg gtc aat cgc gtc ggc gat cac ctg atc gcg gtc  
 35 240  
 Gln Ser Phe Gly Val Val Asn Arg Val Gly Asp His Leu Ile Ala Val  
 65 70 75 80

gag aac acg ccc acg ctg cac aac atc atc gtg tgc acg ttg tgc tcc  
 40 288  
 Glu Asn Thr Pro Thr Leu His Asn Ile Ile Val Cys Thr Leu Cys Ser  
 85 90 95

tgc tat ccg tgg gaa gtg ctc ggc ctg ccg ccg gtc tgg tac aaa tcg  
 45 336  
 Cys Tyr Pro Trp Glu Val Leu Gly Leu Pro Pro Val Trp Tyr Lys Ser  
 100 105 110

gcg ccc tac cgc tcg cgc gcg gtc aac gac ccg cgc ggg gta ctc gcc  
 50 384  
 Ala Pro Tyr Arg Ser Arg Ala Val Asn Asp Pro Arg Gly Val Leu Ala  
 115 120 125

gat ttc ggc ctg aag ctg gcg ccg gat atg caa atc cgt gtc tgg gat  
 55 432  
 Asp Phe Gly Leu Lys Leu Ala Pro Asp Met Gln Ile Arg Val Trp Asp  
 130 135 140

tcg acc gcc gag acg cgc ttc atc gtg ttg ccg atg cgc ccg gcc gga  
480  
Ser Thr Ala Glu Thr Arg Phe Ile Val Leu Pro Met Arg Pro Ala Gly  
145 150 155 160

5 acc gac ggc tgg agc gaa gaa aag ctc gcc gcg ctg gtg aca cgc gat  
528  
Thr Asp Gly Trp Ser Glu Glu Lys Leu Ala Ala Leu Val Thr Arg Asp  
165 170 175

10 tgc atg atc ggc acc ggc tta ccc aag caa ccc aac gag gtc acg taa  
576  
Cys Met Ile Gly Thr Gly Leu Pro Lys Gln Pro Asn Glu Val Thr  
180 185 190

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<210> 48  
<211> 191  
<212> PRT  
20 <213> Unknown

<220>  
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25 <400> 48

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1 5 10 15

30 Tyr Leu Asp Pro Ala Ala Leu Asp Ala Met Ile Glu Ala Tyr Glu Thr  
20 25 30

35 Arg Ile Gly Pro His Asn Gly Ala Arg Val Val Ala Lys Ala Trp Ser  
35 40 45

40 Asp Ala Ala Phe Lys Arg Ala Leu Val Glu Asp Ala Thr Lys Ala Val  
50 55 60

Gln Ser Phe Gly Val Val Asn Arg Val Gly Asp His Leu Ile Ala Val  
65 70 75 80

45 Glu Asn Thr Pro Thr Leu His Asn Ile Ile Val Cys Thr Leu Cys Ser  
85 90 95

50 Cys Tyr Pro Trp Glu Val Leu Gly Leu Pro Pro Val Trp Tyr Lys Ser  
100 105 110

55 Ala Pro Tyr Arg Ser Arg Ala Val Asn Asp Pro Arg Gly Val Leu Ala  
115 120 125

Asp Phe Gly Leu Lys Leu Ala Pro Asp Met Gln Ile Arg Val Trp Asp

130 135 140

5 Ser Thr Ala Glu Thr Arg Phe Ile Val Leu Pro Met Arg Pro Ala Gly  
145 150 155 160

10 Thr Asp Gly Trp Ser Glu Glu Lys Leu Ala Ala Leu Val Thr Arg Asp  
165 170 175

15 Cys Met Ile Gly Thr Gly Leu Pro Lys Gln Pro Asn Glu Val Thr  
180 185 190

<210> 49  
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<212> DNA  
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<222> (1)..(624)  
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48  
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1 5 10 15

35 tcg cag gcg gca ttg cgc gcg aag gcg atc gaa tcg ctg ctg gtc gaa  
96  
Ser Gln Ala Ala Leu Arg Ala Lys Ala Ile Glu Ser Leu Leu Val Glu  
20 25 30

40 aag ggg ctg atc gcg acc gac gtg atc gat cgc gtg gta gca acg tac  
144  
Lys Gly Leu Ile Ala Thr Asp Val Ile Asp Arg Val Val Ala Thr Tyr  
35 40 45

45 gag aaa gaa gtc ggg ccg ctc aac ggc gct aaa gtc gtc gcg cgg gcc  
192  
Glu Lys Glu Val Gly Pro Leu Asn Gly Ala Lys Val Val Ala Arg Ala  
50 55 60

50 tgg acc gat ccg gag tac cgc cgc aga ctg ctc aag aac ggc acg gcg  
240  
Trp Thr Asp Pro Glu Tyr Arg Arg Arg Leu Leu Lys Asn Gly Thr Ala  
65 70 75 80

55 gcg att gcc gag ctg gga ttc ggc ggc ttg cag ggc gaa cac atg atg  
288  
Ala Ile Ala Glu Leu Gly Phe Gly Gly Leu Gln Gly Glu His Met Met  
85 90 95

gtc gtg gaa aac acg ccg tcc gta cat aac gtg atc tgt tgc acg cta  
 336  
 Val Val Glu Asn Thr Pro Ser Val His Asn Val Ile Cys Cys Thr Leu  
 100 105 110  
 5  
 tgc tca tgc tat ccg tgg ccg gtc ctg gga ctt ccg ccg agc tgg tac  
 384  
 Cys Ser Cys Tyr Pro Trp Pro Val Leu Gly Leu Pro Pro Ser Trp Tyr  
 115 120 125  
 10  
 aag tcg ctg gcg tat cgt tgc cga atc gtg cgc gag ccg cgc gcc gtc  
 432  
 Lys Ser Leu Ala Tyr Arg Ser Arg Ile Val Arg Glu Pro Arg Ala Val  
 130 135 140  
 15  
 ctc ggc gaa ttc ggc ctc gaa ttg ccc gaa acg gtg gaa gtc cgc gta  
 480  
 Leu Gly Glu Phe Gly Leu Glu Leu Pro Glu Thr Val Glu Val Arg Val  
 145 150 155 160  
 20  
 tgg gat agc agt gct gag atg cgc tat ctc gtg ttg ccg gag cgt cca  
 528  
 Trp Asp Ser Ser Ala Glu Met Arg Tyr Leu Val Leu Pro Glu Arg Pro  
 165 170 175  
 25  
 gcg gga acg acg gag ttg agc gaa gcg gaa ttg gct tca ttg atc acg  
 576  
 Ala Gly Thr Thr Glu Leu Ser Glu Ala Glu Leu Ala Ser Leu Ile Thr  
 180 185 190  
 30  
 cgc gat gcc ttg atc ggc gtg gcg aaa gtc gcg gcg cca agc cgc tag  
 624  
 Arg Asp Ala Leu Ile Gly Val Ala Lys Val Ala Ala Pro Ser Arg  
 195 200 205  
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 40 <213> Unknown  
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 20 25 30  
 55  
 Lys Gly Leu Ile Ala Thr Asp Val Ile Asp Arg Val Val Ala Thr Tyr  
 35 40 45  
 Glu Lys Glu Val Gly Pro Leu Asn Gly Ala Lys Val Val Ala Arg Ala

	50	55	60
5	Trp Thr Asp Pro Glu Tyr Arg Arg Arg Leu Leu Lys Asn Gly Thr Ala 65 70 75 80		
10	Ala Ile Ala Glu Leu Gly Phe Gly Gly Leu Gln Gly Glu His Met Met 85 90 95		
15	Val Val Glu Asn Thr Pro Ser Val His Asn Val Ile Cys Cys Thr Leu 100 105 110		
20	Cys Ser Cys Tyr Pro Trp Pro Val Leu Gly Leu Pro Pro Ser Trp Tyr 115 120 125		
25	Lys Ser Leu Ala Tyr Arg Ser Arg Ile Val Arg Glu Pro Arg Ala Val 130 135 140		
30	Leu Gly Glu Phe Gly Leu Glu Leu Pro Glu Thr Val Glu Val Arg Val 145 150 155 160		
35	Trp Asp Ser Ser Ala Glu Met Arg Tyr Leu Val Leu Pro Glu Arg Pro 165 170 175		
40	Ala Gly Thr Thr Glu Leu Ser Glu Ala Glu Leu Ala Ser Leu Ile Thr 180 185 190		
45	Arg Asp Ala Leu Ile Gly Val Ala Lys Val Ala Ala Pro Ser Arg 195 200 205		
50	<210> 51 <211> 600 <212> DNA <213> Unknown		
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 96  
 Ala Lys Ala Leu Ala Glu Ala Leu Ser Lys Gln Gly Leu Val Pro Glu  
 20 25 30  
 5  
 ggg ttc ctc gac cag gtc ggt tct cac gcc gcg gag gcg tgg agc ccg  
 144  
 Gly Phe Leu Asp Gln Val Gly Ser His Ala Ala Glu Ala Trp Ser Pro  
 35 40 45  
 10  
 cga aac ggc gca cgg gtc gtg gcg cgg gcg tgg gtg gat ccc gag tac  
 192  
 Arg Asn Gly Ala Arg Val Val Ala Arg Ala Trp Val Asp Pro Glu Tyr  
 50 55 60  
 15  
 cgg acg cgc ttg ctc gcc gac ggc acc gcc gcg tgc gcc gcg ctc ggc  
 240  
 Arg Thr Arg Leu Leu Ala Asp Gly Thr Ala Ala Cys Ala Ala Leu Gly  
 65 70 75 80  
 20  
 tac gcg gga ccg cag gga gag tac atc gtg gta ctc gaa gac acg ctg  
 288  
 Tyr Ala Gly Pro Gln Gly Glu Tyr Ile Val Val Leu Glu Asp Thr Leu  
 85 90 95  
 25  
 gcc gtt cac aac gtg atc gtg tgt acg caa tgc tcg tgt act gcg tgg  
 336  
 Ala Val His Asn Val Ile Val Cys Thr Gln Cys Ser Cys Thr Ala Trp  
 100 105 110  
 30  
 ccc gtg ctg ggg ctg ccg ccc gat tgg tac aag agt ccg gag tat cgc  
 384  
 Pro Val Leu Gly Leu Pro Pro Asp Trp Tyr Lys Ser Pro Glu Tyr Arg  
 115 120 125  
 35  
 gcc cgc gtc gtg cgg gag ccg cga cgg gtg ctt cgc gaa atg ggc ctc  
 432  
 Ala Arg Val Val Arg Glu Pro Arg Arg Val Leu Arg Glu Met Gly Leu  
 130 135 140  
 40  
 gag cta tcc gag agc gtg acg atc cgc gtg tgg gat acg act gcg gaa  
 480  
 Glu Leu Ser Glu Ser Val Thr Ile Arg Val Trp Asp Thr Thr Ala Glu  
 145 150 155 160  
 45  
 acg cgc ttc ctg gtg ctg ccg ctt cgg ccg gcg gga acc gaa ggg tgg  
 528  
 Thr Arg Phe Leu Val Leu Pro Leu Arg Pro Ala Gly Thr Glu Gly Trp  
 165 170 175  
 50  
 agc gcg gag cag ctc gcg tcg ctc gtc acg cgc gag gcg atg atc ggc  
 576  
 Ser Ala Glu Gln Leu Ala Ser Leu Val Thr Arg Glu Ala Met Ile Gly  
 180 185 190  
 55  
 gtg gcg cgg gtc gag gtg gtg tag  
 600  
 Val Ala Arg Val Glu Val Val  
 195

5 <210> 52  
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 <212> PRT  
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 Ala Lys Ala Leu Ala Glu Ala Leu Ser Lys Gln Gly Leu Val Pro Glu  
 20 20 25 30  
  
 Gly Phe Leu Asp Gln Val Gly Ser His Ala Ala Glu Ala Trp Ser Pro  
 35 40 45  
  
 25 Arg Asn Gly Ala Arg Val Val Ala Arg Ala Trp Val Asp Pro Glu Tyr  
 50 55 60  
  
 30 Arg Thr Arg Leu Leu Ala Asp Gly Thr Ala Ala Cys Ala Ala Leu Gly  
 65 70 75 80  
  
 Tyr Ala Gly Pro Gln Gly Glu Tyr Ile Val Val Leu Glu Asp Thr Leu  
 35 85 90 95  
  
 Ala Val His Asn Val Ile Val Cys Thr Gln Cys Ser Cys Thr Ala Trp  
 100 105 110  
  
 40 Pro Val Leu Gly Leu Pro Pro Asp Trp Tyr Lys Ser Pro Glu Tyr Arg  
 115 120 125  
  
 45 Ala Arg Val Val Arg Glu Pro Arg Arg Val Leu Arg Glu Met Gly Leu  
 130 135 140  
  
 50 Glu Leu Ser Glu Ser Val Thr Ile Arg Val Trp Asp Thr Thr Ala Glu  
 145 150 155 160  
  
 Thr Arg Phe Leu Val Leu Pro Leu Arg Pro Ala Gly Thr Glu Gly Trp  
 55 165 170 175  
  
 Ser Ala Glu Gln Leu Ala Ser Leu Val Thr Arg Glu Ala Met Ile Gly  
 180 185 190



Val Ala Arg Val Glu Val Val  
195

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<211> 645  
<212> DNA  
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<220>  
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<221> CDS  
<222> (1)..(645)  
<223>

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48  
Met Ser Gly Thr His His His Asp His Asp His Asp His Asp His Ala  
1 5 10 15

25  
cat ccg ggc gtc gcc aag gac gag aag gtc cac ggc tat tac caa ttg  
96  
His Pro Gly Val Ala Lys Asp Glu Lys Val His Gly Tyr Tyr Gln Leu  
20 25 30

30  
ctc ggc ctc gcc atc aaa gag ctg ctg atc gaa aaa ggc gtc atc acc  
144  
Leu Gly Leu Ala Ile Lys Glu Leu Leu Ile Glu Lys Gly Val Ile Thr  
35 40 45

35  
gcc gcc gag gtg cgc caa gcg atc gag gcg cgc gac gcg atc acg ccg  
192  
Ala Ala Glu Val Arg Gln Ala Ile Glu Ala Arg Asp Ala Ile Thr Pro  
50 55 60

40  
tcg ctc ggc ggc aag gtg gtc gcg cgc gcc tgg acc gat ccg gcc tac  
240  
Ser Leu Gly Gly Lys Val Val Ala Arg Ala Trp Thr Asp Pro Ala Tyr  
65 70 75 80

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aag gcg cgg ctg atc gcc gat ccc gcc gcc gcc atg atg gag atg ggc  
288  
Lys Ala Arg Leu Ile Ala Asp Pro Ala Ala Ala Met Met Glu Met Gly  
85 90 95

50  
gtc gat ctc ggc ccc acc gga ctc gcc atc gcc gag aac acg ccg gag  
336  
Val Asp Leu Gly Pro Thr Gly Leu Ala Ile Ala Glu Asn Thr Pro Glu  
100 105 110

55  
gcg cac aac gtc atc gtc tgc acc ctg tgc tcg tgc tat ccg cgc gcc  
384  
Ala His Asn Val Ile Val Cys Thr Leu Cys Ser Cys Tyr Pro Arg Ala  
115 120 125

gtg ctc ggc ctg ccg ccc tcc tgg tac aag gac cgc gat tac cgg tcg  
 432  
 Val Leu Gly Leu Pro Pro Ser Trp Tyr Lys Asp Arg Asp Tyr Arg Ser  
 130 135 140  
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 cgc gtg gtg cgc gag ccg cgc gcc gtg ctc aag gag ttc ggc acg gaa  
 480  
 Arg Val Val Arg Glu Pro Arg Ala Val Leu Lys Glu Phe Gly Thr Glu  
 145 150 155 160  
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 ttg ccc gac gac gtc gac gtc cgc gtc cac gat tcg acc gcc gat ctg  
 528  
 Leu Pro Asp Asp Val Asp Val Arg Val His Asp Ser Thr Ala Asp Leu  
 165 170 175  
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 cgc tat ctc gtg ctg ccg atg cgc ccg gcc ggc acc gag ggc atg agc  
 576  
 Arg Tyr Leu Val Leu Pro Met Arg Pro Ala Gly Thr Glu Gly Met Ser  
 180 185 190  
 20  
 gag gcg gag ctg gcc gag atc gtg acg cgc gac tgc atg atc ggc gtg  
 624  
 Glu Ala Glu Leu Ala Glu Ile Val Thr Arg Asp Cys Met Ile Gly Val  
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 Leu Gly Leu Ala Ile Lys Glu Leu Leu Ile Glu Lys Gly Val Ile Thr  
 35 40 45  
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 Ala Ala Glu Val Arg Gln Ala Ile Glu Ala Arg Asp Ala Ile Thr Pro  
 50 55 60  
 Ser Leu Gly Gly Lys Val Val Ala Arg Ala Trp Thr Asp Pro Ala Tyr  
 65 70 75 80

5 Lys Ala Arg Leu Ile Ala Asp Pro Ala Ala Ala Met Met Glu Met Gly  
85 90 95

Val Asp Leu Gly Pro Thr Gly Leu Ala Ile Ala Glu Asn Thr Pro Glu  
100 105 110

10 Ala His Asn Val Ile Val Cys Thr Leu Cys Ser Cys Tyr Pro Arg Ala  
115 120 125

15 Val Leu Gly Leu Pro Pro Ser Trp Tyr Lys Asp Arg Asp Tyr Arg Ser  
130 135 140

20 Arg Val Val Arg Glu Pro Arg Ala Val Leu Lys Glu Phe Gly Thr Glu  
145 150 155 160

25 Leu Pro Asp Asp Val Asp Val Arg Val His Asp Ser Thr Ala Asp Leu  
165 170 175

Arg Tyr Leu Val Leu Pro Met Arg Pro Ala Gly Thr Glu Gly Met Ser  
180 185 190

30 Glu Ala Glu Leu Ala Glu Ile Val Thr Arg Asp Cys Met Ile Gly Val  
195 200 205

35 Thr Val Pro Lys Ala Pro  
210

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1 5 10 15

acg ccg atc gaa gcg cgc gtg aag gcg ctg gaa tcg ctg ctg gtc gcc  
96

	Thr	Pro	Ile	Glu	Ala	Arg	Val	Lys	Ala	Leu	Glu	Ser	Leu	Leu	Val	Ala	
				20					25					30			
5	aag	ggc	tat	gtc	gat	ccc	gcc	gcg	ctc	gat	gcg	atc	atc	gac	acc	tat	144
	Lys	Gly	Tyr	Val	Asp	Pro	Ala	Ala	Leu	Asp	Ala	Ile	Ile	Asp	Thr	Tyr	
			35					40					45				
10	gag	acg	aag	atc	ggc	ccg	cgc	aac	ggc	gcc	cgc	gtc	gtc	gcc	aag	gcc	192
	Glu	Thr	Lys	Ile	Gly	Pro	Arg	Asn	Gly	Ala	Arg	Val	Val	Ala	Lys	Ala	
		50					55					60					
15	tgg	acc	gat	ccg	gaa	ttc	gcg	gcg	cgg	ctc	aag	cag	gat	ggc	agc	gcc	240
	Trp	Thr	Asp	Pro	Glu	Phe	Ala	Ala	Arg	Leu	Lys	Gln	Asp	Gly	Ser	Ala	65
						70					75					80	
20	gcc	gtc	gcc	gaa	ctc	ggc	tat	ggc	ggg	cgt	ggc	ggc	gag	cat	atc	gtc	288
	Ala	Val	Ala	Glu	Leu	Gly	Tyr	Gly	Gly	Arg	Gly	Gly	Glu	His	Ile	Val	
					85					90					95		
25	gcc	tgt	ttc	aat	acg	ccc	gaa	gag	cac	aac	ctg	atc	gtc	tgc	acg	ctc	336
	Ala	Cys	Phe	Asn	Thr	Pro	Glu	Glu	His	Asn	Leu	Ile	Val	Cys	Thr	Leu	
				100					105					110			
30	tgc	tcg	tgc	tat	ccc	tgg	ccg	gtg	ctc	ggc	ctg	ccg	ccg	gtc	tgg	tac	384
	Cys	Ser	Cys	Tyr	Pro	Trp	Pro	Val	Leu	Gly	Leu	Pro	Pro	Val	Trp	Tyr	
			115					120					125				
35	aaa	tcc	ccg	ccc	tat	cgc	tcg	aaa	gcg	gtg	atc	gac	ccg	cgc	ggc	gtg	432
	Lys	Ser	Pro	Pro	Tyr	Arg	Ser	Lys	Ala	Val	Ile	Asp	Pro	Arg	Gly	Val	
			130				135					140					
40	ctg	gcc	gat	ttc	ggc	gtg	acc	ctg	ccg	gag	gga	caa	agg	atc	cgc	gtc	480
	Leu	Ala	Asp	Phe	Gly	Val	Thr	Leu	Pro	Glu	Gly	Gln	Arg	Ile	Arg	Val	145
						150					155					160	
45	tgg	gat	tcc	acc	gcc	gaa	acc	cgc	ttc	att	gtc	atc	ccc	ctg	cgc	ccg	528
	Trp	Asp	Ser	Thr	Ala	Glu	Thr	Arg	Phe	Ile	Val	Ile	Pro	Leu	Arg	Pro	
					165					170					175		
50	gcc	ggg	acg	gaa	ggc	tgg	tcg	gaa	gaa	cag	ctg	gcg	gcg	atc	gtg	acg	576
	Ala	Gly	Thr	Glu	Gly	Trp	Ser	Glu	Glu	Gln	Leu	Ala	Ala	Ile	Val	Thr	
				180					185					190			
55	cgt	gac	agc	atg	atc	ggc	acc	ggc	gtg	gtc	agc	gcg	gag	gct	tcg	cga	624
	Arg	Asp	Ser	Met	Ile	Gly	Thr	Gly	Val	Val	Ser	Ala	Glu	Ala	Ser	Arg	
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627

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25 Lys Gly Tyr Val Asp Pro Ala Ala Leu Asp Ala Ile Ile Asp Thr Tyr  
 35 40 45

Glu Thr Lys Ile Gly Pro Arg Asn Gly Ala Arg Val Val Ala Lys Ala  
 50 55 60

30 Trp Thr Asp Pro Glu Phe Ala Ala Arg Leu Lys Gln Asp Gly Ser Ala  
 65 70 75 80

35 Ala Val Ala Glu Leu Gly Tyr Gly Gly Arg Gly Gly Glu His Ile Val  
 85 90 95

40 Ala Cys Phe Asn Thr Pro Glu Glu His Asn Leu Ile Val Cys Thr Leu  
 100 105 110

45 Cys Ser Cys Tyr Pro Trp Pro Val Leu Gly Leu Pro Pro Val Trp Tyr  
 115 120 125

Lys Ser Pro Pro Tyr Arg Ser Lys Ala Val Ile Asp Pro Arg Gly Val  
 130 135 140

50 Leu Ala Asp Phe Gly Val Thr Leu Pro Glu Gly Gln Arg Ile Arg Val  
 145 150 155 160

55 Trp Asp Ser Thr Ala Glu Thr Arg Phe Ile Val Ile Pro Leu Arg Pro  
 165 170 175

Ala Gly Thr Glu Gly Trp Ser Glu Glu Gln Leu Ala Ala Ile Val Thr

180 185 190

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ggc ggc gca gct atc ccc gat ctg gct cat gcg gca gac cac gac cac  
96

30 Gly Gly Ala Ala Ile Pro Asp Leu Ala His Ala Ala Asp His Asp His  
20 25 30

cag cat caa gat ttg ccg tcc gat ctg gcg ctg cgg gtg aag tcg ctc  
144

35 Gln His Gln Asp Leu Pro Ser Asp Leu Ala Leu Arg Val Lys Ser Leu  
35 40 45

gaa tcg ctg ctt gtc gag aag ggg ctg gtg gag cga gca gcg ctc gac  
192

40 Glu Ser Leu Leu Val Glu Lys Gly Leu Val Glu Arg Ala Ala Leu Asp  
50 55 60

gcg ctg gtg gac acc tac gag cac aaa gtc ggg ccg cga aac gga gcg  
240

45 Ala Leu Val Asp Thr Tyr Glu His Lys Val Gly Pro Arg Asn Gly Ala  
65 70 75 80

cgc gtt gtc gcg cgg gcc tgg gtt gac ccg gac tac aag caa cgg tta  
288

50 Arg Val Val Ala Arg Ala Trp Val Asp Pro Asp Tyr Lys Gln Arg Leu  
85 90 95

ttc gcg aac ggt acc gcc gca gtc gcg gag ttc ggc tac tcc ggc tcg  
336

55 Phe Ala Asn Gly Thr Ala Ala Val Ala Glu Phe Gly Tyr Ser Gly Ser  
100 105 110

cag ggc gct gac atc cgg gtc gtc gaa aac acg gcc act gta cat aac  
384

Gln Gly Ala Asp Ile Arg Val Val Glu Asn Thr Ala Thr Val His Asn

	115	120	125
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	432		
5	Leu Val Val Cys Thr Leu Cys Ser Cys Tyr Pro Trp Pro Val Leu Gly		
	130	135	140
	ttg ccg ccg gtc tgg tac aag tcc gcg ccc tat cgg tct cgc gtg gtg		
	480		
10	Leu Pro Pro Val Trp Tyr Lys Ser Ala Pro Tyr Arg Ser Arg Val Val		
	145	150	155
	atc gat ccg cga ggt gtg ctg cgc gag ttc ggc gtg gtg ctg ccg gac		
	528		
15	Ile Asp Pro Arg Gly Val Leu Arg Glu Phe Gly Val Val Leu Pro Asp		
	165	170	175
	cat atc gaa gtg cgt gtc tat gac agc acg gcg gag caa cgc tat cta		
	576		
20	His Ile Glu Val Arg Val Tyr Asp Ser Thr Ala Glu Gln Arg Tyr Leu		
	180	185	190
	gtg ctg ccg gag cgg ccg gcc gga acc gaa aac ctg aca gaa gaa gcg		
	624		
25	Val Leu Pro Glu Arg Pro Ala Gly Thr Glu Asn Leu Thr Glu Glu Ala		
	195	200	205
	ctg gcg ctg ctg gtg acg cgc gac gcg atg att ggc gtg gcc aag gtc		
	672		
30	Leu Ala Leu Leu Val Thr Arg Asp Ala Met Ile Gly Val Ala Lys Val		
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55	Gln His Gln Asp Leu Pro Ser Asp Leu Ala Leu Arg Val Lys Ser Leu		
	35	40	45

Glu Ser Leu Leu Val Glu Lys Gly Leu Val Glu Arg Ala Ala Leu Asp  
 50 55 60

5

Ala Leu Val Asp Thr Tyr Glu His Lys Val Gly Pro Arg Asn Gly Ala  
 65 70 75 80

10

Arg Val Val Ala Arg Ala Trp Val Asp Pro Asp Tyr Lys Gln Arg Leu  
 85 90 95

15

Phe Ala Asn Gly Thr Ala Ala Val Ala Glu Phe Gly Tyr Ser Gly Ser  
 100 105 110

20

Gln Gly Ala Asp Ile Arg Val Val Glu Asn Thr Ala Thr Val His Asn  
 115 120 125

25

Leu Val Val Cys Thr Leu Cys Ser Cys Tyr Pro Trp Pro Val Leu Gly  
 130 135 140

30

Leu Pro Pro Val Trp Tyr Lys Ser Ala Pro Tyr Arg Ser Arg Val Val  
 145 150 155 160

35

Ile Asp Pro Arg Gly Val Leu Arg Glu Phe Gly Val Val Leu Pro Asp  
 165 170 175

40

His Ile Glu Val Arg Val Tyr Asp Ser Thr Ala Glu Gln Arg Tyr Leu  
 180 185 190

45

Val Leu Pro Glu Arg Pro Ala Gly Thr Glu Asn Leu Thr Glu Glu Ala  
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&lt;223&gt;

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 1 5 10 15

10 tac tac cag atg atg gaa gtg agc ctg cgc gag ctg ctg gtg gag aag  
 96  
 Tyr Tyr Gln Met Met Glu Val Ser Leu Arg Glu Leu Leu Val Glu Lys  
 20 25 30

15 ggc gtg atc acc gaa gcg gaa gtc gcc cgc gcg atg ggc gag atc ggc  
 144  
 Gly Val Ile Thr Glu Ala Glu Val Ala Arg Ala Met Gly Glu Ile Gly  
 35 40 45

20 gcg aga agc ccg gag cgc ggc gcg aag atg gtc gcg cgc gcg tgg gtg  
 192  
 Ala Arg Ser Pro Glu Arg Gly Ala Lys Met Val Ala Arg Ala Trp Val  
 50 55 60

25 gac ccg gcg tac aag gcg cgc atg ctt gcc gac ggc agc aag gcc gcc  
 240  
 Asp Pro Ala Tyr Lys Ala Arg Met Leu Ala Asp Gly Ser Lys Ala Ala  
 65 70 75 80

30 gag gag ctc ggg ttc gag gtg ccg ggc ctc aag ctg atc gtg gtc gag  
 288  
 Glu Glu Leu Gly Phe Glu Val Pro Gly Leu Lys Leu Ile Val Val Glu  
 85 90 95

35 aac acc gcg gac acg cac aac gtg gtc gtg tgc acg ctg tgc tcg tgc  
 336  
 Asn Thr Ala Asp Thr His Asn Val Val Val Cys Thr Leu Cys Ser Cys  
 100 105 110

40 tac ccg cgc atc ctg ctc ggc atc ccg ccc gag tgg tac aag tcg cgc  
 384  
 Tyr Pro Arg Ile Leu Leu Gly Ile Pro Pro Glu Trp Tyr Lys Ser Arg  
 115 120 125

45 agc tac cgc agc cgc aca gtg cgc gag ccg cgc gcg gtg ctc gcc gaa  
 432  
 Ser Tyr Arg Ser Arg Thr Val Arg Glu Pro Arg Ala Val Leu Ala Glu  
 130 135 140

50 ttc ggc acg acc atc ccg gag aac gtc gcg atc cga gtg cac gac agc  
 480  
 Phe Gly Thr Thr Ile Pro Glu Asn Val Ala Ile Arg Val His Asp Ser  
 145 150 155 160

55 act gcg gac atg cgc tac ctc gtg atg ccg atg cgg cct gcg ggc acc  
 528  
 Thr Ala Asp Met Arg Tyr Leu Val Met Pro Met Arg Pro Ala Gly Thr  
 165 170 175

gaa aat ttc acc gaa gag cag ctc gct gca ttg gtg acg cgc gac agc  
 576  
 Glu Asn Phe Thr Glu Glu Gln Leu Ala Ala Leu Val Thr Arg Asp Ser  
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 609  
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 30 Gly Val Ile Thr Glu Ala Glu Val Ala Arg Ala Met Gly Glu Ile Gly  
 35 40 45  
 35 Ala Arg Ser Pro Glu Arg Gly Ala Lys Met Val Ala Arg Ala Trp Val  
 50 55 60  
 40 Asp Pro Ala Tyr Lys Ala Arg Met Leu Ala Asp Gly Ser Lys Ala Ala  
 65 70 75 80  
 Glu Glu Leu Gly Phe Glu Val Pro Gly Leu Lys Leu Ile Val Val Glu  
 85 90 95  
 45 Asn Thr Ala Asp Thr His Asn Val Val Val Cys Thr Leu Cys Ser Cys  
 100 105 110  
 50 Tyr Pro Arg Ile Leu Leu Gly Ile Pro Pro Glu Trp Tyr Lys Ser Arg  
 115 120 125  
 55 Ser Tyr Arg Ser Arg Thr Val Arg Glu Pro Arg Ala Val Leu Ala Glu  
 130 135 140  
 Phe Gly Thr Thr Ile Pro Glu Asn Val Ala Ile Arg Val His Asp Ser  
 145 150 155 160

5 Thr Ala Asp Met Arg Tyr Leu Val Met Pro Met Arg Pro Ala Gly Thr  
 165 170 175  
 Glu Asn Phe Thr Glu Glu Gln Leu Ala Ala Leu Val Thr Arg Asp Ser  
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 1 5 10 15  
 gct gcc aac tgg caa ctt atc agt cgc cct tca tgg tca gct tgt aat  
 35 96  
 Ala Ala Asn Trp Gln Leu Ile Ser Arg Pro Ser Trp Ser Ala Cys Asn  
 20 25 30  
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 40 144  
 Ile Leu Val Leu Met Ser Ala Thr His Pro Lys Lys Arg Ala Ala Asp  
 35 40 45  
 atc ggc ggc aac aaa gcc ggc gcg gtg gac acc gcg gat cac ggc atg  
 45 192  
 Ile Gly Gly Asn Lys Ala Gly Ala Val Asp Thr Ala Asp His Gly Met  
 50 55 60  
 aag ttc tgg gag cgg cag gcc aac gcc ctg cgc acc gcg ctg cgg cgc  
 50 240  
 Lys Phe Trp Glu Arg Gln Ala Asn Ala Leu Arg Thr Ala Leu Arg Arg  
 65 70 75 80  
 aat gga ctg atg agc gta gat gag ctg cgc cgc gca gcg gag gac ctg  
 55 288  
 Asn Gly Leu Met Ser Val Asp Glu Leu Arg Arg Ala Ala Glu Asp Leu  
 85 90 95

5 gga gac cgc tac gcg aag ctt gag tac ttc gag cgc acg acg ttc gcg  
 336  
 Gly Asp Arg Tyr Ala Lys Leu Glu Tyr Phe Glu Arg Thr Thr Phe Ala  
 100 105 110

10 ctg cgc acg gtc ctg ctc gaa aag ggc tac ttc acg gag gag tcg ctc  
 384  
 Leu Arg Thr Val Leu Leu Glu Lys Gly Tyr Phe Thr Glu Glu Ser Leu  
 115 120 125

15 gcg gcg aag atg gcc gag gtg cgg aag ccg ctt cga tgt gcc gcg caa  
 432  
 Ala Ala Lys Met Ala Glu Val Arg Lys Pro Leu Arg Cys Ala Ala Gln  
 130 135 140

20 gaa gga att gcc ggt gaa gaa gaa agt gaa gcg atg aac cca gcg acg  
 480  
 Glu Gly Ile Ala Gly Glu Glu Glu Ser Glu Ala Met Asn Pro Ala Thr  
 145 150 155 160

25 ggc aag cag gac ggc caa cgg ctg cca tct acg tat acc gcg gcg ccc  
 528  
 Gly Lys Gln Asp Gly Gln Arg Leu Pro Ser Thr Tyr Thr Ala Ala Pro  
 165 170 175

30 ggg cac cga ttc gat gtc ggt gac cgc gtt gtg gtc aag cgc tca aat  
 576  
 Gly His Arg Phe Asp Val Gly Asp Arg Val Val Val Lys Arg Ser Asn  
 180 185 190

35 ccg ccc ggc cac cgc cgc acg cct cat tac atc cgc ggc aag acg ggc  
 624  
 Pro Pro Gly His Arg Arg Thr Pro His Tyr Ile Arg Gly Lys Thr Gly  
 195 200 205

40 gtg atc gag cgc atc tgc ggc gcc ttc ccc aac ccg gaa gag ctg gca  
 672  
 Val Ile Glu Arg Ile Cys Gly Ala Phe Pro Asn Pro Glu Glu Leu Ala  
 210 215 220

45 tac gga ttc gac ggc gaa ccg aag aag gtg ctc tac cgc gtg cga ttc  
 720  
 Tyr Gly Phe Asp Gly Glu Pro Lys Lys Val Leu Tyr Arg Val Arg Phe  
 225 230 235 240

50 cgg caa aaa gag gtg tgg ccg gcc tat cgc ggc ccg gcg cac gac gtg  
 768  
 Arg Gln Lys Glu Val Trp Pro Ala Tyr Arg Gly Pro Ala His Asp Val  
 245 250 255

55 atc gag atg gag att ttc gag cat tgg ctc gag ccg gcg cag agc cag  
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 Lys Thr

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 20 20 25 30  
  
 20 Ile Leu Val Leu Met Ser Ala Thr His Pro Lys Lys Arg Ala Ala Asp  
 35 40 45  
  
 25 Ile Gly Gly Asn Lys Ala Gly Ala Val Asp Thr Ala Asp His Gly Met  
 50 55 60  
  
 30 Lys Phe Trp Glu Arg Gln Ala Asn Ala Leu Arg Thr Ala Leu Arg Arg  
 65 70 75 80  
  
 Asn Gly Leu Met Ser Val Asp Glu Leu Arg Arg Ala Ala Glu Asp Leu  
 35 85 90 95  
  
 Gly Asp Arg Tyr Ala Lys Leu Glu Tyr Phe Glu Arg Thr Thr Phe Ala  
 100 105 110  
  
 40 Leu Arg Thr Val Leu Leu Glu Lys Gly Tyr Phe Thr Glu Glu Ser Leu  
 115 120 125  
  
 45 Ala Ala Lys Met Ala Glu Val Arg Lys Pro Leu Arg Cys Ala Ala Gln  
 130 135 140  
  
 50 Glu Gly Ile Ala Gly Glu Glu Glu Ser Glu Ala Met Asn Pro Ala Thr  
 145 150 155 160  
  
 Gly Lys Gln Asp Gly Gln Arg Leu Pro Ser Thr Tyr Thr Ala Ala Pro  
 55 165 170 175  
  
 Gly His Arg Phe Asp Val Gly Asp Arg Val Val Val Lys Arg Ser Asn  
 180 185 190

Pro Pro Gly His Arg Arg Thr Pro His Tyr Ile Arg Gly Lys Thr Gly  
 195 200 205

5

Val Ile Glu Arg Ile Cys Gly Ala Phe Pro Asn Pro Glu Glu Leu Ala  
 210 215 220

10

Tyr Gly Phe Asp Gly Glu Pro Lys Lys Val Leu Tyr Arg Val Arg Phe  
 225 230 235 240

15

Arg Gln Lys Glu Val Trp Pro Ala Tyr Arg Gly Pro Ala His Asp Val  
 245 250 255

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Ile Glu Met Glu Ile Phe Glu His Trp Leu Glu Pro Ala Gln Ser Gln  
 260 265 270

Lys Thr

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45

cgc tac acg atc gac gcg ccc gca ttc cat tcg ccg tgg gaa gtg cgc  
 96  
 Arg Tyr Thr Ile Asp Ala Pro Ala Phe His Ser Pro Trp Glu Val Arg  
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gcg aat tcg ctc tat gcg ttc gcg gtg cgc ctc ggc atc ttc aac atg  
 144  
 Ala Asn Ser Leu Tyr Ala Phe Ala Val Arg Leu Gly Ile Phe Asn Met  
 35 40 45

55

gac gaa tac cgc cat gcg atc gag cgg atg gag ccg cgc cat tac ctc  
 192  
 Asp Glu Tyr Arg His Ala Ile Glu Arg Met Glu Pro Arg His Tyr Leu  
 50 55 60

ggc gcc ggc tat tac gaa cgc tcg ttg acc ggc ctc gcg acc ttg ctg  
 240  
 Gly Ala Gly Tyr Tyr Glu Arg Ser Leu Thr Gly Leu Ala Thr Leu Leu  
 65 70 75 80  
 5  
 gtc gag aag ggc gtc gtg acg cgc gag gaa ctc gag acc cgg gcg cag  
 288  
 Val Glu Lys Gly Val Val Thr Arg Glu Glu Leu Glu Thr Arg Ala Gln  
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 Asp Phe Val Ser Gly His Val Arg Met Pro Ala Tyr Ile Arg Gly Lys  
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 576  
 Phe Arg Ser Glu Asp Leu Trp Pro Asp Ser Ala Asp Ser Ala Leu Val  
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Val Glu Lys Gly Val Val Thr Arg Glu Glu Leu Glu Thr Arg Ala Gln  
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 115 120 125

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Thr Gly Val Val Val Ser Glu Ser Pro Asp Tyr Pro Phe Pro Asp Ala  
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Thr Ile Glu Arg Asp His Gly Val Phe Val Phe Pro Asp Thr Asn Ala  
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 35 40 45  
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 115 120 125



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tcg atg cgc gcc ggc gcc atg ttg ccg cgc acc ctg acc cag gcc gat  
 336  
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 576  
 40 Leu Gly Ala Gly Asp Asp Pro Gln Trp Leu Tyr Ala Val Val Phe Pro  
 180 185 190

gcg cgc gag ttg tgg gga gag gcg gcc gat ccc gcg atc aaa atc tcg  
 624  
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15	Arg	Val	Leu	Gly	Met	Gln	Arg	Ala	Met	Gly	Phe	Thr	Gly	Leu	Trp	Thr	35	40	45	
20	Ile	Asp	Ala	Gly	Arg	Ala	Ser	Leu	Glu	Ala	Leu	Pro	Pro	Leu	Ala	Tyr	50	55	60	
25	Leu	Gly	Ser	Ser	Tyr	Tyr	Arg	Arg	Trp	Phe	Leu	Gly	Leu	Glu	Ser	Arg	65	70	75	80
30	Leu	Leu	Leu	Arg	Gly	Leu	Val	Gly	Glu	Asp	Glu	Ile	Ala	Ala	Gly	Arg	85	90	95	
35	Ser	Met	Arg	Ala	Gly	Ala	Met	Leu	Pro	Arg	Thr	Leu	Thr	Gln	Ala	Asp	100	105	110	
40	Val	Glu	Lys	Thr	Leu	Thr	Arg	Gly	Asp	Phe	Ala	Arg	Pro	Thr	Asn	Thr	115	120	125	
45	Pro	Ala	Arg	Phe	Gln	Pro	Gly	Asp	Arg	Val	Gln	Thr	Lys	Asn	Ile	Asn	130	135	140	
50	Pro	Ala	Thr	His	Thr	Arg	Leu	Pro	Arg	Tyr	Ala	Arg	Gly	Lys	Thr	Gly	145	150	155	160
55	Thr	Val	Glu	Ala	Val	Arg	Gly	Val	His	Val	Phe	Pro	Asp	Thr	Ala	Ala	165	170	175	
	Leu	Gly	Ala	Gly	Asp	Asp	Pro	Gln	Trp	Leu	Tyr	Ala	Val	Val	Phe	Pro	180	185	190	
	Ala	Arg	Glu	Leu	Trp	Gly	Glu	Ala	Ala	Asp	Pro	Ala	Ile	Lys	Ile	Ser	195	200	205	
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 Cys Leu Ala Leu Asn Arg Ala Met Gly Ala Ile Gly Ala Trp Thr Ile  
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30

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gtc gca cgc ggg ttc gcg ggc gcc gat gaa ctc gcc gcg ggt cgc gca  
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 Val Ala Arg Gly Phe Ala Gly Ala Asp Glu Leu Ala Ala Gly Arg Ala  
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 336  
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 Pro Arg Thr Leu Thr Arg Gly Ser Phe Phe Arg Glu Ala Thr Lys Pro  
 115 120 125

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 130 135 140

gcg acg cac act cgg ttg ccg cga tat gcg cgc ggc cat gtc ggc gtg  
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 Ala Thr His Thr Arg Leu Pro Arg Tyr Ala Arg Gly His Val Gly Val  
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 Ile Glu Ala Ile Arg Gly Cys His Val Phe Pro Asp Ser Val Ala Ile  
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 576  
 Gly Ala Gly Glu Asn Pro Gln Trp Leu Tyr Thr Val Val Phe Glu Gly  
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 624  
 Arg Thr Leu Trp Gly Asp Ser Ala Asp Pro Thr Leu Lys Val Ser Ile  
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 Gly Ser Ser Tyr Tyr Gly Lys Trp Ala Arg Arg Leu Glu Asn Met Val  
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 85 90 95

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 5 Pro Arg Thr Leu Thr Arg Gly Ser Phe Phe Arg Glu Ala Thr Lys Pro  
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 144



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	65					70					75					80
15	atc	gat	gcg	ggc	acg	ctg	act	cct	ggt	gaa	atc	gat	gcg	cga	atg	ggc
	288															
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20	gag	ctc	gaa	acg	gat	cct	gat	cgc	cca	ctg	cca	agg	act	gat	aac	cct
	336															
	Glu	Leu	Glu	Thr	Asp	Pro	Asp	Arg	Pro	Leu	Pro	Arg	Thr	Asp	Asn	Pro
				100					105					110		
25	gag	cat	gcc	gat	ggg	gtg	gcg	gcg	gcg	ttg	cgc	gcc	ggc	agt	ccc	gta
	384															
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			115					120					125			
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40	gcg	cgc	ggc	aag	cgc	ggc	gtc	gta	acg	ctg	cac	cat	ggc	gca	cat	gtc
	528															
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					165					170					175	
45	ttt	ccg	gat	acg	aac	gcg	cac	ggg	ctg	ggc	gag	cat	ccg	cag	cat	ctc
	576															
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				180					185					190		
50	tat	acg	gtg	cga	ttt	cct	gcg	cgc	gag	tta	tgg	agc	gac	gcg	gcc	gag
	624															
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 Lys Val Lys Pro Ala Met Ala Lys Ala Thr Ala Lys Val Ser Val Ser  
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 Leu Lys Pro Ala Arg Ala Ala Thr Ser Ala Ala Ser Gly Gly Glu Lys  
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Glu Ile Glu Pro Asp Glu Pro Val Phe His Glu Pro Trp Glu Ala Leu
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20 gtt ttc gct ctg atg act ctc ggt atc ggg aag ctc ggc gcg tac aac
144
Val Phe Ala Leu Met Thr Leu Gly Ile Gly Lys Leu Gly Ala Tyr Asn
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192
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50 55 60

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240
Leu Ala Ala Thr Tyr Tyr Glu Arg Met Leu Thr Gly Val Ala Thr Leu
65 70 75 80

35 ctc gtc gag aag aac gtc gtt gcc cgc gac gag ctc gaa gcg cgc gcc
288
Leu Val Glu Lys Asn Val Val Ala Arg Asp Glu Leu Glu Ala Arg Ala
85 90 95

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336
Gly Gly Pro Phe Pro Leu Ser Arg Pro Val Ala Glu Arg Pro Thr Ala
100 105 110

45 gac ctt cgg ccc cag cca caa cca cgc ttc gcg gtc ggg gat cgg gtc
384
Asp Leu Arg Pro Gln Pro Gln Pro Arg Phe Ala Val Gly Asp Arg Val
115 120 125

50 gtc gtg cgc gac atc cac ccg gcc ggg cat act cgt gtg ccg cgc tac
432
Val Val Arg Asp Ile His Pro Ala Gly His Thr Arg Val Pro Arg Tyr
130 135 140

55 gtg cgg ggc aag cgc ggg acc gtc gtg cac gtc gcg ccg aaa ttc tcg
480
Val Arg Gly Lys Arg Gly Thr Val Val His Val Ala Pro Lys Phe Ser
145 150 155 160

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ttc ccc gac acg gcc gcg cac ggg ctg acc cat cgg agc gag cac acg  
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 Phe Pro Asp Thr Ala Ala His Gly Leu Thr His Arg Ser Glu His Thr  
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 tat cac gtg gaa ttc gtc gcg agt gac ctt tgg gcc gac gtg gcc ggg  
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 Tyr His Val Glu Phe Val Ala Ser Asp Leu Trp Ala Asp Val Ala Gly  
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 624  
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 Glu Ile Glu Pro Asp Glu Pro Val Phe His Glu Pro Trp Glu Ala Leu  
 20 25 30  
 40  
 Val Phe Ala Leu Met Thr Leu Gly Ile Gly Lys Leu Gly Ala Tyr Asn  
 35 40 45  
 45  
 Ala Asp Glu Tyr Arg His Ser Ile Glu Arg Met Asp Pro Ala His Tyr  
 50 55 60  
 50  
 Leu Ala Ala Thr Tyr Tyr Glu Arg Met Leu Thr Gly Val Ala Thr Leu  
 65 70 75 80  
 Leu Val Glu Lys Asn Val Val Ala Arg Asp Glu Leu Glu Ala Arg Ala  
 85 90 95  
 55  
 Gly Gly Pro Phe Pro Leu Ser Arg Pro Val Ala Glu Arg Pro Thr Ala  
 100 105 110

Asp Leu Arg Pro Gln Pro Gln Pro Arg Phe Ala Val Gly Asp Arg Val  
 115 120 125

5 Val Val Arg Asp Ile His Pro Ala Gly His Thr Arg Val Pro Arg Tyr  
 130 135 140

10 Val Arg Gly Lys Arg Gly Thr Val Val His Val Ala Pro Lys Phe Ser  
 145 150 155 160

15 Phe Pro Asp Thr Ala Ala His Gly Leu Thr His Arg Ser Glu His Thr  
 165 170 175

Tyr His Val Glu Phe Val Ala Ser Asp Leu Trp Ala Asp Val Ala Gly  
 180 185 190

20 Ser Asn Glu Ser Val Leu Val Asp Leu Trp Asp Gly Tyr Leu Glu Gly  
 195 200 205

25 Ala

30 <210> 75  
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45 Met Arg Gly Thr His Asp Leu Gly Gly Leu Pro Ala Gly Pro Val Asp  
 1 5 10 15

acc gct ccc cac gaa ccg acc ttc tgg gaa aag cag gtg gac gcg atc  
 96

50 Thr Ala Pro His Glu Pro Thr Phe Trp Glu Lys Gln Val Asp Ala Ile  
 20 25 30

cac ggc ctg ctc ggc gat tcc aag cgc cgc atc acg ctg cgc gac gag  
 144

55 His Gly Leu Leu Gly Asp Ser Lys Arg Arg Ile Thr Leu Arg Asp Glu  
 35 40 45

aac cgc ctc tat atc gaa tcg ctc ggc gac gac gtc tac aac acg ctc  
 192

Asn Arg Leu Tyr Ile Glu Ser Leu Gly Asp Asp Val Tyr Asn Thr Leu  
 50 55 60

5 ggc tat tac gag cgc tgg acc gcc gcc atg tgc cgc cag ctc atc gac  
 240  
 Gly Tyr Tyr Glu Arg Trp Thr Ala Ala Met Cys Arg Gln Leu Ile Asp  
 65 70 75 80

10 aag ggc gtg ctg acg cag gac gag atc gac gcc aag atc gcc gag ctg  
 288  
 Lys Gly Val Leu Thr Gln Asp Glu Ile Asp Ala Lys Ile Ala Glu Leu  
 85 90 95

15 cgc gcc cgc ggc gtc ggc gcg gga cga cga cga aac ggc ctg caa acc  
 336  
 Arg Ala Arg Gly Val Gly Ala Gly Arg Arg Arg Asn Gly Leu Gln Thr  
 100 105 110

20 gtg agc gcc gat ctg gcc gcc gat ctg gcc atc gcg ccg cgc ttc gcc  
 384  
 Val Ser Ala Asp Leu Ala Ala Asp Leu Ala Ile Ala Pro Arg Phe Ala  
 115 120 125

25 gcc ggc gac cgc gtg cgg gtg cgc gac gat tat ccg ccc ggg cac atc  
 432  
 Ala Gly Asp Arg Val Arg Val Arg Asp Asp Tyr Pro Pro Gly His Ile  
 130 135 140

30 cgc acg ccg gtc tat gtg cgc ggc aag acg ggc gtg gtg acg cgc tgc  
 480  
 Arg Thr Pro Val Tyr Val Arg Gly Lys Thr Gly Val Val Thr Arg Cys  
 145 150 155 160

35 ttc ggc ggc ttc aag aac ccg gaa ttg ctc gcc atc ggc aag gac ggc  
 528  
 Phe Gly Ala Phe Lys Asn Pro Glu Leu Leu Ala Ile Gly Lys Asp Gly  
 165 170 175

40 ctg ccc aag aaa att ctc tac gaa gtg cgc ttc aag cag acc gat ctc  
 576  
 Leu Pro Lys Lys Ile Leu Tyr Glu Val Arg Phe Lys Gln Thr Asp Leu  
 180 185 190

45 tgg ccc gac tat gcc ggg ccg gcg acc gat acg ctg ctg atc gac atc  
 624  
 Trp Pro Asp Tyr Ala Gly Pro Ala Thr Asp Thr Leu Leu Ile Asp Ile  
 195 200 205

50 tac gaa cat tgg ctg agc gac gcg tga  
 651  
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55 <210> 76  
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&lt;400&gt; 76

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10

Thr Ala Pro His Glu Pro Thr Phe Trp Glu Lys Gln Val Asp Ala Ile  
20 25 30

15

His Gly Leu Leu Gly Asp Ser Lys Arg Arg Ile Thr Leu Arg Asp Glu  
35 40 45

20

Asn Arg Leu Tyr Ile Glu Ser Leu Gly Asp Asp Val Tyr Asn Thr Leu  
50 55 60

25

Gly Tyr Tyr Glu Arg Trp Thr Ala Ala Met Cys Arg Gln Leu Ile Asp  
65 70 75 80

30

Lys Gly Val Leu Thr Gln Asp Glu Ile Asp Ala Lys Ile Ala Glu Leu  
85 90 95

35

Arg Ala Arg Gly Val Gly Ala Gly Arg Arg Arg Asn Gly Leu Gln Thr  
100 105 110

40

Val Ser Ala Asp Leu Ala Ala Asp Leu Ala Ile Ala Pro Arg Phe Ala  
115 120 125

Ala Gly Asp Arg Val Arg Val Arg Asp Asp Tyr Pro Pro Gly His Ile  
130 135 140

45

Arg Thr Pro Val Tyr Val Arg Gly Lys Thr Gly Val Val Thr Arg Cys  
145 150 155 160

Phe Gly Ala Phe Lys Asn Pro Glu Leu Leu Ala Ile Gly Lys Asp Gly  
165 170 175

50

Leu Pro Lys Lys Ile Leu Tyr Glu Val Arg Phe Lys Gln Thr Asp Leu  
180 185 190

55

Trp Pro Asp Tyr Ala Gly Pro Ala Thr Asp Thr Leu Leu Ile Asp Ile  
195 200 205

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 1 5 10 15

25 cag atc gag aag gac gag tcg ccc ttc cat gcg cgc tgg gaa ggc cgg  
 96  
 Gln Ile Glu Lys Asp Glu Ser Pro Phe His Ala Arg Trp Glu Gly Arg  
 20 25 30

30 gcg caa gcg atg tac aac gcc att gcg gcc acg ggc aga ctg gtg ctt  
 144  
 Ala Gln Ala Met Tyr Asn Ala Ile Ala Ala Thr Gly Arg Leu Val Leu  
 35 40 45

35 ggc ggt aga ccc aca cgg gaa ggg ttc ccg ccg gcc gaa tat ctc cgc  
 192  
 Gly Gly Arg Pro Thr Arg Glu Gly Phe Pro Pro Ala Glu Tyr Leu Arg  
 50 55 60

40 atg agc tac tat gaa ttg ggt ttc agg gtg ctg gtc gag gac ttg gtc  
 240  
 Met Ser Tyr Tyr Glu Leu Gly Phe Arg Val Leu Val Glu Asp Leu Val  
 65 70 75 80

45 ctg aac ggt ttg gtg acg cgc gcg gaa atc acg agc ggc cgt ccg gca  
 288  
 Leu Asn Gly Leu Val Thr Arg Ala Glu Ile Thr Ser Gly Arg Pro Ala  
 85 90 95

50 aag ggg gct gca aag tcg acg ccc gca atc acc gcc gcc acc gcg cag  
 336  
 Lys Gly Ala Ala Lys Ser Thr Pro Ala Ile Thr Ala Ala Thr Ala Gln  
 100 105 110

55 gca tat atg ttc gcg ctc aaa tcg acc cgg cga gac gta ccg gtc acg  
 384  
 Ala Tyr Met Phe Ala Leu Lys Ser Thr Arg Arg Asp Val Pro Val Thr  
 115 120 125

gcg cgt ttc caa gtc ggt cag cgt gtg cgc gcg cgc aac atc aat ccg  
 432  
 Ala Arg Phe Gln Val Gly Gln Arg Val Arg Ala Arg Asn Ile Asn Pro

	130		135		140
	gtc acc cat acg cgc ctg ccc cgt tac gcg cgc ggc aaa ttc ggc gtt				
	480				
5	Val Thr His Thr Arg Leu Pro Arg Tyr Ala Arg Gly Lys Phe Gly Val				
	145		150		155 160
	atc gaa cgt gac cac ggt gtt tac agg ttc gac gat tcc ttt gcc acg				
	528				
10	Ile Glu Arg Asp His Gly Val Tyr Arg Phe Asp Asp Ser Phe Ala Thr				
			165		170 175
	tcc ggc gac gag aag ccc cag cac gtt tat tct gtg cgc ttc gcg gcg				
	576				
15	Ser Gly Asp Glu Lys Pro Gln His Val Tyr Ser Val Arg Phe Ala Ala				
			180		185 190
	cgc gaa cta tgg ggc gaa gcc gcg ccg ccg cga gat gct gtc tat atc				
	624				
20	Arg Glu Leu Trp Gly Glu Ala Ala Pro Pro Arg Asp Ala Val Tyr Ile				
			195		200 205
	gaa atc tgg gat gac aac ctt gag cca gcg tga				
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45					
	Ala Gln Ala Met Tyr Asn Ala Ile Ala Ala Thr Gly Arg Leu Val Leu				
			35		40 45
50					
	Gly Gly Arg Pro Thr Arg Glu Gly Phe Pro Pro Ala Glu Tyr Leu Arg				
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55	Met Ser Tyr Tyr Glu Leu Gly Phe Arg Val Leu Val Glu Asp Leu Val				
	65		70		75 80
	Leu Asn Gly Leu Val Thr Arg Ala Glu Ile Thr Ser Gly Arg Pro Ala				

	85	90	95
5	Lys Gly Ala Ala Lys Ser Thr Pro Ala Ile Thr Ala Ala Thr Ala Gln 100 105 110		
10	Ala Tyr Met Phe Ala Leu Lys Ser Thr Arg Arg Asp Val Pro Val Thr 115 120 125		
15	Ala Arg Phe Gln Val Gly Gln Arg Val Arg Ala Arg Asn Ile Asn Pro 130 135 140		
20	Val Thr His Thr Arg Leu Pro Arg Tyr Ala Arg Gly Lys Phe Gly Val 145 150 155 160		
25	Ile Glu Arg Asp His Gly Val Tyr Arg Phe Asp Asp Ser Phe Ala Thr 165 170 175		
30	Ser Gly Asp Glu Lys Pro Gln His Val Tyr Ser Val Arg Phe Ala Ala 180 185 190		
35	Arg Glu Leu Trp Gly Glu Ala Ala Pro Pro Arg Asp Ala Val Tyr Ile 195 200 205		
40	Glu Ile Trp Asp Asp Asn Leu Glu Pro Ala 210 215		
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5 cag cat caa gat ttg ccg tcc gat ctg gcg ctg cgg gtg aag tcg ctc  
 144  
 Gln His Gln Asp Leu Pro Ser Asp Leu Ala Leu Arg Val Lys Ser Leu  
 35 40 45  
 10 gaa tcg ctg ctt gtc gag aag ggg ctg gtg gag cga gca gcg ctc gac  
 192  
 Glu Ser Leu Leu Val Glu Lys Gly Leu Val Glu Arg Ala Ala Leu Asp  
 50 55 60  
 15 gcg ctg gtg gac acc tac gag cac aaa gtc ggg ccg cga aac gga gcg  
 240  
 Ala Leu Val Asp Thr Tyr Glu His Lys Val Gly Pro Arg Asn Gly Ala  
 65 70 75 80  
 20 cgc gtt gtc gcg cgg gcc tgg gtt gac ccg gac tac aag caa cgg tta  
 288  
 Arg Val Val Ala Arg Ala Trp Val Asp Pro Asp Tyr Lys Gln Arg Leu  
 85 90 95  
 25 ttc gcg aac ggt acc gcc gca gtc gcg gag ttc ggc tac tcc ggc tcg  
 336  
 Phe Ala Asn Gly Thr Ala Ala Val Ala Glu Phe Gly Tyr Ser Gly Ser  
 100 105 110  
 30 cag ggc gct gac atc cgg gtc gtc gaa aac acg gcc act gta cat aac  
 384  
 Gln Gly Ala Asp Ile Arg Val Val Glu Asn Thr Ala Thr Val His Asn  
 115 120 125  
 35 ctc gtc gtg tgc acg ctg tgc tct tgt tat ccc tgg ccg gtg ctg ggc  
 432  
 Leu Val Val Cys Thr Leu Cys Ser Cys Tyr Pro Trp Pro Val Leu Gly  
 130 135 140  
 40 ttg ccg ccg gtc tgg tac aag tcc gcg ccc tat cgg tct cgc gtg gtg  
 480  
 Leu Pro Pro Val Trp Tyr Lys Ser Ala Pro Tyr Arg Ser Arg Val Val  
 145 150 155 160  
 45 atc gat ccg cga ggt gtg ctg cgc gag ttc ggc gtg gtg ctg ccg gac  
 528  
 Ile Asp Pro Arg Gly Val Leu Arg Glu Phe Gly Val Val Leu Pro Asp  
 165 170 175  
 50 cat atc gaa gtg cgt gtc tat gac agc acg gcg gag caa cgc tat cta  
 576  
 His Ile Glu Val Arg Val Tyr Asp Ser Thr Ala Glu Gln Arg Tyr Leu  
 180 185 190  
 55 gtg ctg ccg gag cgg ccg gcc gga acc gaa aac ctg aca gaa gaa gcg  
 624  
 Val Leu Pro Glu Arg Pro Ala Gly Thr Glu Asn Leu Thr Glu Glu Ala  
 195 200 205  
 ctg gcg ctg ctg gtg acg cgc gac gcg atg att ggc gtg gcc aag gtc  
 672  
 Leu Ala Leu Leu Val Thr Arg Asp Ala Met Ile Gly Val Ala Lys Val  
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 696  
 Ala Pro Pro Gly Gly Arg Gly  
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Gly Gly Ala Ala Ile Pro Asp Leu Ala His Ala Ala Asp His Asp His  
 20 25 30  
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Gln His Gln Asp Leu Pro Ser Asp Leu Ala Leu Arg Val Lys Ser Leu  
 35 40 45  
 30

Glu Ser Leu Leu Val Glu Lys Gly Leu Val Glu Arg Ala Ala Leu Asp  
 50 55 60  
 35

Ala Leu Val Asp Thr Tyr Glu His Lys Val Gly Pro Arg Asn Gly Ala  
 65 70 75 80  
 40

Arg Val Val Ala Arg Ala Trp Val Asp Pro Asp Tyr Lys Gln Arg Leu  
 85 90 95  
 45

Phe Ala Asn Gly Thr Ala Ala Val Ala Glu Phe Gly Tyr Ser Gly Ser  
 100 105 110  
 50

Gln Gly Ala Asp Ile Arg Val Val Glu Asn Thr Ala Thr Val His Asn  
 115 120 125  
 55

Leu Val Val Cys Thr Leu Cys Ser Cys Tyr Pro Trp Pro Val Leu Gly  
 130 135 140  
 60

Leu Pro Pro Val Trp Tyr Lys Ser Ala Pro Tyr Arg Ser Arg Val Val  
 145 150 155 160  
 65

Ile Asp Pro Arg Gly Val Leu Arg Glu Phe Gly Val Val Leu Pro Asp  
 165 170 175

5 His Ile Glu Val Arg Val Tyr Asp Ser Thr Ala Glu Gln Arg Tyr Leu  
 180 185 190

Val Leu Pro Glu Arg Pro Ala Gly Thr Glu Asn Leu Thr Glu Glu Ala  
 195 200 205

10 Leu Ala Leu Leu Val Thr Arg Asp Ala Met Ile Gly Val Ala Lys Val  
 210 215 220

15 Ala Pro Pro Gly Gly Arg Gly  
 225 230

20 <210> 81  
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35 Met Lys Asp Ser Pro Val Phe Arg Glu Pro Trp Glu Ala Gln Ala Phe  
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gcg ttg gcg atc tcg ttg caa gac cgt ggc gtg ttc acg cga gac gaa  
 96

40 Ala Leu Ala Ile Ser Leu Gln Asp Arg Gly Val Phe Thr Arg Asp Glu  
 20 25 30

tgg gcg gcg gca ctc ggc gat gaa atc aag aag gcg caa gct gcc ggc  
 144

45 Trp Ala Ala Ala Leu Gly Asp Glu Ile Lys Lys Ala Gln Ala Ala Gly  
 35 40 45

gat ccc gat acg ggc gag act tat tac cat cat tgg atg gca gcg ctc  
 192

50 Asp Pro Asp Thr Gly Glu Thr Tyr Tyr His His Trp Met Ala Ala Leu  
 50 55 60

gaa cgg ctg att gca gcc aag ggt gtt gcc gat acg cag acg ctc gcg  
 240

55 Glu Arg Leu Ile Ala Ala Lys Gly Val Ala Asp Thr Gln Thr Leu Ala  
 65 70 75 80

cgc aca cgc gac gcc tgg cag cac gcc tgt gcg cga acg ccg cat ggc  
 288

Arg Thr Arg Asp Ala Trp Gln His Ala Cys Ala Arg Thr Pro His Gly  
 85 90 95  
 5 gcg cca atc gag cta aga ccg gac gac ttc agg aat tga  
 327  
 Ala Pro Ile Glu Leu Arg Pro Asp Asp Phe Arg Asn  
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 10 <210> 82  
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 20 25 30  
 30 Trp Ala Ala Ala Leu Gly Asp Glu Ile Lys Lys Ala Gln Ala Ala Gly  
 35 40 45  
 Asp Pro Asp Thr Gly Glu Thr Tyr Tyr His His Trp Met Ala Ala Leu  
 50 55 60  
 35 Glu Arg Leu Ile Ala Ala Lys Gly Val Ala Asp Thr Gln Thr Leu Ala  
 65 70 75 80  
 40 Arg Thr Arg Asp Ala Trp Gln His Ala Cys Ala Arg Thr Pro His Gly  
 85 90 95  
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 gcg att ccg cgc cgc aac ggc gag ccg gtc ttc gac gag cct tgg gaa  
 96  
 10 Ala Ile Pro Arg Arg Asn Gly Glu Pro Val Phe Asp Glu Pro Trp Glu  
 20 25 30  
 agt cgt gcg ttt ggg ata gcg gtc gcc ctt tcc gag ggt ggc ctc tat  
 144  
 15 Ser Arg Ala Phe Gly Ile Ala Val Ala Leu Ser Glu Gly Gly Leu Tyr  
 35 40 45  
 tca tgg gat gaa ttt cgc gat tgc ctg att gct gaa atc aca gcg gcg  
 192  
 20 Ser Trp Asp Glu Phe Arg Asp Cys Leu Ile Ala Glu Ile Thr Ala Ala  
 50 55 60  
 gat gcg cgc ggc gag cat acg agc tat tac gaa cgg ttt ctc gcc gcc  
 240  
 25 Asp Ala Arg Gly Glu His Thr Ser Tyr Tyr Glu Arg Phe Leu Ala Ala  
 65 70 75 80  
 ctg cag cat ctg ctc gcg gcc aaa cgc ctc tgc act ccc gat gaa gtc  
 288  
 30 Leu Gln His Leu Leu Ala Ala Lys Arg Leu Cys Thr Pro Asp Glu Val  
 85 90 95  
 gag cgg cgg atg aac act agc gca ggc acc tga  
 321  
 35 Glu Arg Arg Met Asn Thr Ser Ala Gly Thr  
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 55 Ser Arg Ala Phe Gly Ile Ala Val Ala Leu Ser Glu Gly Gly Leu Tyr  
 35 40 45



Ser Trp Asp Glu Phe Arg Asp Cys Leu Ile Ala Glu Ile Thr Ala Ala  
 50 55 60

5  
 Asp Ala Arg Gly Glu His Thr Ser Tyr Tyr Glu Arg Phe Leu Ala Ala  
 65 70 75 80

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 Leu Gln His Leu Leu Ala Ala Lys Arg Leu Cys Thr Pro Asp Glu Val  
 85 90 95

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 100 105

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40  
 gag cta ccg caa ctt cca agc gac acc gac ggc ccc gtc ttc gcg gaa  
 96  
 Asp Leu Pro Gln Leu Pro Ser Asp Thr Asp Gly Pro Val Phe Ala Glu  
 20 25 30

45  
 cct tgg gaa gcg gaa gcg ttt gcg ctt gcc gta agt ctt tca gag caa  
 144  
 Pro Trp Glu Ala Glu Ala Phe Ala Leu Ala Val Ser Leu Ser Glu Gln  
 35 40 45

50  
 gga cat ttc acg tgg aag gaa tgg gca gca acg ctc gcc gat gaa ctg  
 192  
 Gly His Phe Thr Trp Lys Glu Trp Ala Ala Thr Leu Ala Asp Glu Leu  
 50 55 60

55  
 gag ggc gcc gcc aat cgc ggc gag ccg gat gac ggt acg cat tat tat  
 240  
 Glu Gly Ala Ala Asn Arg Gly Glu Pro Asp Asp Gly Thr His Tyr Tyr  
 65 70 75 80

gag tac tgg ctg acg gcc ctg gaa agg ctg gtt acg atc aag ggc ctg  
 288  
 Glu Tyr Trp Leu Thr Ala Leu Glu Arg Leu Val Thr Ile Lys Gly Leu

	85	90	95
	aca gat cag caa gcg atg cgc gag cgc aaa gag gcg tgg gaa gaa gcc		
	336		
5	Thr Asp Gln Gln Ala Met Arg Glu Arg Lys Glu Ala Trp Glu Glu Ala		
	100	105	110
	tat cgc cat acc ccg cat ggc gcg cca gtt gaa ctt atg tct ccg ctc		
	384		
10	Tyr Arg His Thr Pro His Gly Ala Pro Val Glu Leu Met Ser Pro Leu		
	115	120	125
	gat caa agc cgg ata gcc gaa gag gac agc gaa tcc tca tag		
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	20	25	30
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	Pro Trp Glu Ala Glu Ala Phe Ala Leu Ala Val Ser Leu Ser Glu Gln		
	35	40	45
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	Gly His Phe Thr Trp Lys Glu Trp Ala Ala Thr Leu Ala Asp Glu Leu		
	50	55	60
45	Glu Gly Ala Ala Asn Arg Gly Glu Pro Asp Asp Gly Thr His Tyr Tyr		
	65	70	75
			80
	Glu Tyr Trp Leu Thr Ala Leu Glu Arg Leu Val Thr Ile Lys Gly Leu		
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	Thr Asp Gln Gln Ala Met Arg Glu Arg Lys Glu Ala Trp Glu Glu Ala		
	100	105	110
55			
	Tyr Arg His Thr Pro His Gly Ala Pro Val Glu Leu Met Ser Pro Leu		
	115	120	125

Asp Gln Ser Arg Ile Ala Glu Glu Asp Ser Glu Ser Ser  
130 135 140